

CAAP Quarterly Report

Date of Report: *January 7, 2016*

Contract Number: *DTPH5615HCAP09*

Prepared for: *U.S. Department of Transportation/Pipeline and Hazardous Materials Safety Administration (USDOT-PHMSA)*

Project Title: *Advancement in the Area of Intrinsically Locatable Plastic Materials*

Prepared by: *West Virginia University, Constructed Facilities Center (WVU-CFC)*

Contact Information: *Dr. Udaya B. Halabe, Professor, CEE Department, WVU*

Email: Udaya.Halabe@mail.wvu.edu

Phone: 304-293-9934

For quarterly period ending: *December 31, 2015*

Business and Activity Section

1. Generated Commitments

2.1 Agreement Changes

There has been no change in project participants or other contracts details during the last quarter.

2.2 Purchases

Some supplies have been purchased during this reporting period. These items are listed in Table 1. The Glass Fiber Reinforced Polymer (GFRP) and Carbon Fiber Reinforced Polymer (CFRP) pipes are shown in Figure 1. In addition, plastic pipes will be purchased in the upcoming quarter for the sake of comparison with CFRP and GFRP pipes in terms of strength of Ground Penetrating Radar (GPR) signals.

Table 1: Supplies purchased

No.	Item Description	Quantity	Cost (\$)
1	12" diameter GFRP pipes, 5' long	12	00.00*
2	3" diameter CFRP pipes, 5' long	5	00.00*
3	GPR battery for using the system in the field	1	46.43

* These pipes were donated by Creative Pultrusions, Inc., Alum Bank, PA



(a) GFRP Pipes



(b) CFRP Pipes

Figure 1: Pipes for use in this research

2. Status Update of Past Quarter Activities

The following project planning and research activities have been completed in the last quarter (October 1 – December 31, 2015);

2.1 Kickoff Meeting

Kickoff meeting for the project was held at West Virginia University (WVU) on November 24, 2015. This meeting was attended by Dr. Udaya Halabe, Dr. Hota GangaRao and Dr. John Zondlo from WVU and Ms. Karen Gentile, from USDOT-PHMSA. This meeting included discussions on the on-going project and visits to WVU's lab facilities.

2.2 Site Location

WVU-CFC, in consultation with the Facilities Management at WVU, has identified a site for burying the pipes for future testing (Figure 2). The boundary of the site has been marked to avoid hitting utility lines, and is ready for digging to bury the pipes.



Figure 2: The located site within WVU campus for burying the pipes

2.3 Procurement of Materials

During the last quarter, we acquired 12" diameter GFRP pipes and 3" diameter CFRP pipes for burying in the coming months. In addition, plastic piles are in the process of being acquired, and larger diameter CFRP pipes will be fabricated.

3. Description of any Problems/Challenges

No challenges were encountered in the past quarter.

4. Planned Activities for the Next Quarter

The following activities are planned for the next quarter:

1. Some of the GFRP and Plastic pipes will be wrapped with CFRP fabric, and others will be wrapped with metallic rings to improve Ground Penetrating Radar (GPR) detection. Some GFRP and Plastic pipes will not be wrapped and used as control.
2. The CFRP pipes will not require any wrapping since carbon should be detectable using GPR. In addition to the existing 3" diameter CFRP pipes, 12" diameter CFRP pipes will be fabricated by WVU-CFC using the readily available carbon fabric and resin.
3. The pipes will be buried at the located site and their detectability using GPR will be evaluated over the next several quarters under various soil moisture conditions.